



SAFETY ALERT

ELECTRIC HEATER OVERHEATS DUE TO STATIC BUILD-UP

Safety Alert: #12 – 2010	RELEASE DATE: MAY 27, 2010
Incident Type: Equipment Failure	Country and Region: Canada, Central Alberta

Description of Incident:

- A Ruffneck FX4 series electric/glycol heater in service in a treatment building experienced a static rupture of the heat exchanger core. No injuries or significant damage resulted from the event and the heater was returned to the manufacturer for analysis.

What Caused it:

- The heat exchanger core ruptured due to internal static overpressure. The static overpressure resulted from coincidental malfunction of the unit's electrical contactor and a plugged pressure relief valve (PRV).
- The contactor failed due to wear, extreme heat and physical binding. The closed contactor allowed two phases of the heating elements to remain energized, while rendering the three phase fan and control circuit (all electrical safety devices) inoperative.
- An increase in internal fluid temperature resulted and led to elevated static pressure, which was not relieved by the plugged PRV.

Contactor failures may result from one or more of the following:

- irregular power supply,
- faulty control transformer,
- faulty external thermostat,
- damaged contactor,
- loose electrical connections or vibration.

This alert is valid for Ruffneck model heaters XL, XL3, XL4, FX4 and FX5 (also refer to [Enform Safety Alert #08-2008](#)).

Corrective Actions:

- Follow the preventive maintenance schedule in the Ruffneck Owner's Manual and include the heater checklist as part of a daily operational inspection.
- Inspect and replace failed contactors and transformers with the new industrial contactor and 50VA transformer now standard in all Ruffneck electric heaters. It is recommended when a contactor is replaced the transformer be replaced at the same time.
- Conduct field training on operation and maintenance of Ruffneck Heaters

Additional information:

CCI Thermal Technologies Inc. offers a free seminar on the operation and maintenance of Ruffneck Heaters. The seminar highlights the following critical items:

- Perform periodic maintenance checks on both electrical and mechanical systems of the heater
- If the PRV has released, the heater core must be replaced immediately or the unit must be returned to the factory for servicing.
- Never tamper with or force the contactor, or attempt to service the PRV

DISCLAIMER:

This Safety Alert is designed to prevent similar incidents by communicating the information at the earliest possible opportunity. Accordingly, the information may change over time. It may be necessary to obtain updates from the source before relying upon the accuracy of the information contained herein. This material is presented for information purposes only. Managers and supervisors should evaluate this information to determine if it can be applied to their own situations and practices.